

Built-in refrigerating unit

[001] The present invention relates to a refrigerating unit for installing in a furniture niche,
5 comprising a body and a door that enclose a thermally insulated inside compartment.

[002] When refrigerating units of this type are installed in a furniture niche, the door is
usually covered by a decorative panel which is mounted subsequently and which is matched
in its appearance to the doors of neighbouring cupboard elements of built-in furniture of
10 kitchen units and is usually made of the same material as these so that an unfamiliar user
cannot identify from the outside at which point the refrigerating unit is located in a multi-door
wall of cupboards.

[003] Another problem is that in the case of a built-in unit, the use of space is comparatively
15 inefficient compared with a table-top appliance. The overall volume of the built-in appliance
cannot be larger than the volume of the furniture niche into which it is mounted. However, the
latter volume cannot be completely utilised since in order to be able to mount the appliance,
all the dimensions of its housing must be somewhat smaller than the corresponding
dimensions of the furniture niche. For illustration reference is made to the appended Fig 1
20 which shows a conventional built-in appliance in a furniture niche.

[004] The furniture niche defined by side walls 1 and a rear wall 2 has a front edge 3 to which
the decorative panel 4 is articulated by means of a hinge 5. The refrigerating unit, which is
substantially composed of a body 6 and a door 7, must not project over the front edge 3
25 otherwise the decorative panel 4 cannot adopt the closed position shown by the dashed line in
the figure. The door 7 is connected to the body 6 by means of its own hinge 8. In order to
achieve that the door 7 also opens when a user pivots the decorative panel 4 into the open
position shown by the continuous line, one of the decorative panel 4 and the door 7 is
provided with a horizontally oriented rail and the other is provided with a slider 9 which can
30 slide along the rail, which surrounds the rail and transmits a tensile force to the door 7 but
allows a horizontal displacement of the decorative panel 4 and the door 7 during pivoting.

[005] It is an object of the invention to provide a built-in refrigerating unit whose built-in location in a furniture front can be identified directly from outside. Another object is to provide a built-in refrigerating unit where a large volume of the inside compartment can be achieved without loss of insulation quality.

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[006] Both objects are achieved by a refrigerating unit having the features of claim 1.

[007] Since it is permitted that when the refrigerating unit is properly installed in the furniture niche, the door projects over the front edge of the furniture niche, it is firstly achieved that the decorative panel covering the door of the refrigerating unit projects further than the doors of cupboard elements adjacent to the furniture niche of the refrigerating unit. As a result, the decorative panel of the refrigerating unit can be identified immediately from its protruding position even if it is stylistically matched to the neighbouring cupboard doors. In addition, the projecting door allows the inside compartment of the refrigerating unit to be expanded frontwards compared with compared with comparable conventional models without this necessarily involving a reduction in the thickness of the insulating layer in the door.

[008] Advantageously the body of the refrigerating unit remains with its front side behind the front edge of the furniture niche when it is properly installed. That is, the refrigerating unit according to the invention preferably only differs from a convention unit by its door, namely that the receiving space formed on its inner side is embodied as significantly deeper whilst the insulation thickness of the door is the same. Precisely the same body model can be used for a conventional built-in refrigerating unit as for a unit according to the invention. This simplifies the development and production can be rationalised.

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[009] The projection of the door is preferably so large that the inside compartment (which can extend into a recess of the door) projects over the front edge of the furniture niche.

[010] If the door projects over the front edge of the furniture niche, but the body does not, this means that the depth of the door must be greater than in conventional refrigerating units. If parts of the door project forwards far over the pivot axis in such a case, these are moved sideways when opening the door. That is, when the door of the refrigerating unit is opened,

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the decorative panel can come to rest in front of the doors of neighbouring cupboard elements and restrict their freedom of movement. In order to avoid this, in the case of a door comprising a door panel and a frame projecting from the door panel to the body, which together define the front area of the inside compartment, a pivot axis of the door is preferably arranged far remote from the body, especially it preferably runs through the door panel of the door.

[011] The fact that the door projects over the front edge of the furniture niche allows the decorative panel to be mounted rigidly on the door so that unlike in the prior art shown in Fig. 1, a single hinge, e.g. a multiply articulated hinge, is sufficient to pivot the door and the decorative panel.

[012] In particular if the door projects far over the front edge of the furniture niche, it can be desirable if a piece of the decorative panel also covers a side flank of the door.

[013] If the door has a decorative final state on its lateral flanks and on its front side, i.e. made of stainless steel sheet, for example, a decorative panels, especially one covering the side flanks of the door, can be dispensed with.

[014] The subject matter of the invention is also a set of parts for mounting a refrigerating unit as described above, comprising a body and a plurality of doors of different depth which can be mounted on the body. If a manufacturer has produced a plurality of different doors for one body model, the user can select a suitable door according to his personal space requirements. Either the finished appliance with the body and door already joined together or both parts separately for later assembly at the installation site can be supplied.

[015] Further features and advantages of the invention are obtained from the following description of exemplary embodiments with reference to the appended figures. In the figures:

[016] Fig. 1, already discussed, is a schematic horizontal section through a conventional built-in refrigerating unit, built into a furniture niche;

[017] Fig. 2 is a section similar to that in Fig. 1 through a first embodiment of the refrigerating unit according to the invention;

[018] Fig. 3 is a section through a second embodiment of the refrigerating unit wherein doors
5 of neighbouring cupboard elements are also shown; and

[019] Fig. 4 is a section through a third embodiment of the refrigerating unit.

[020] The furniture niche with the walls 1, 2 and the body 6 of the refrigerating unit shown in
10 Fig. 2 are identical to the corresponding parts from Fig. 1 and are therefore not explained again here.

[021] The refrigerating unit is properly installed in a position which is specified by the requirement that between the rear wall 2 of the furniture niche and the body 6 there is an
15 intermediate space 11 of sufficient depth for cooling an evaporator (not shown) mounted on the rear side of the body 6 and on the other hand, a front edge 21 of the body 6 does not project over the front edge 3 of the furniture niche or the depth of the intermediate space 11 exceeds the depth required for cooling by no more than a pre-determined amount.

[022] The door 10 of the refrigerating unit shown in different positions comprises a flat outer
20 cladding 12 which forms the front side of the door and an inner cladding produced by deep drawing of a plastic panel, which has lateral spars and bears a peripheral magnetic seal known per se at its lateral edges, which abuts tightly against the front edge of the body 6 when the door 10 is in the closed position. The inside compartment 14 of the refrigerating unit is
25 extended into the door 10 by the spars 13. The spars 13 can also be connected by horizontal sections so as to form a type of frame through which the inside compartment 14 is extended inside the door 10.

[023] A hinge 8 which forms the pivot axis of the door 10 is formed in a manner known per se
30 and therefore not shown in detail, by two arms which are screwed at one end to the front side 21 of the body 6 at the height of the top or bottom by means of a tab and which have a pin at the other end which engages in holes of the door 10 provided for this purpose and defines the

pivot axis of the door. These holes are disposed in the area of the outer cladding 12 so that the pivot axis lies outside the furniture niche, in front of its front edge 3. The placement of the axis avoids parts of the door extending over adjacent furniture elements when open and hindering access thereto.

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[024] A decorative panel 15 is mounted rigidly on the front side of the door 10. The decorative panel 10 extends laterally over the edges of the door 10 and thus conceals it from the user's gaze when the door is closed provided that the user does not look along the front of the furniture precisely in the lateral direction. A handle can be mounted on the decorative
10 panel 15; a projecting edge zone 16 of the decorative panel 15 can also serve as a handle in a side facing away from the hinge 8.

[025] The lateral overhang of the decorative panel 15 on the side of the hinge 8 can be selected to be smaller than in the edge zone 16 so that on opening the door, the decorative
15 panel 15 can penetrate a little way into the furniture niche without colliding with the front edge of the adjacent side wall 1.

[026] In principle, the depth of the spars 13 can be selected arbitrarily; it is therefore easy to produce different models of doors 10 which, as shown in Fig. 3, merely differ in the depth of
20 the spars 13 and therefore in the extent of the frontward overhang of the decorative panel 15 over the doors 17 of neighbouring cupboard elements. This allows a user to enlarge the inside compartment available to him by selecting a door of suitable depth or optimally matching to his requirements even when the volume available for building the refrigerating unit into the furniture niche is limited.

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[027] The configuration in Fig. 4 differs from that of Fig. 2 by the decorative panel. Whereas the decorative panel 15 in Fig.2 has a flat rear side which only covers the side flanks of the door 10 by its lateral overhang, the decorative panel 18 in Fig 4 is provided with side cheeks
30 19, 20 which extend parallel to the side flanks of the door 10 and thus conceal the door 10 from viewing from the lateral direction. The side cheeks 19, 20 end shortly before the front edge 3 of the furniture niche. Depending on how the axis of the hinge 8 is positioned, it may be necessary to provide an undercut on the side cheek 19 close to the axis, make this shorter

than the side cheek 20 or omit it completely so as not to impede opening of the door.

Corresponding side cheeks not shown can also be provided on the upper or lower edge of the decorative panel 18.